

VOL. V.

FEBRUARY, 1899.

No. 2.

The Forester

A monthly magazine devoted to the care and use
of forests and forest trees and to related subjects.



PUBLISHED BY

The American Forestry Association.



Price 10 Cents.

\$1.00 a Year.

Entered at the Post Office in Washington, D. C., as second class matter.

TABLE OF CONTENTS.

Why Persons Interested in Irrigation should be Members of the American Forestry Association.....	25
Letter from the Secretary of Agriculture.....	26
Object of Forest Reservation.....	27
Grazing.....	31
Forest Administration.....	32
Opposition to Reservation Policy.....	34
A Practical View.....	35
Lumber Industry: Log Salvage.....	36
Interest in Utah.....	36
Recent Forestry Meetings:	
California.....	39
Minnesota.....	39
Nebraska.....	40
Utah.....	40
Educational.....	41
Editorial:	
Forest Organization.....	43
The Protection of Irrigation Works.....	44
Recent Publications.....	47

THE AMERICAN FORESTRY ASSOCIATION.

ORGANIZED APRIL, 1832.

INCORPORATED JANUARY, 1897.

OFFICERS FOR 1899.

President.

Hon. JAMES WILSON, Secretary of Agriculture.

First Vice President.

Dr. B. E. FERNOW.

Corresponding Secretary.

F. H. NEWELL.

Recording Secretary and Treasurer.

GEORGE P. WHITTLESEY.

Directors.

JAMES WILSON.

B. E. FERNOW.

GEORGE W. McLANAHAN.

CHARLES C. BINNEY.

HENRY GANNETT.

EDWARD A. BOWERS.

ARNOLD HAGUE.

GIFFORD PINCHOT.

FREDERICK V. COVILLE.

F. H. NEWELL.

GEORGE P. WHITTLESEY.

Vice Presidents.

SIR H. G. JOLY DE LOTBINIERE, Pointe Platon, Quebec.

CHARLES MOHR, Mobile, Ala.

D. M. RIOERDAN, Flagstaff, Ariz.

THOMAS C. McRAE, Prescott, Ark.

ABBOTT KINNEY, Lamanda Park, Cal.

E. T. ENSIGN, Colorado Springs, Colo.

ROBERT BROWN, New Haven, Conn.

WM. M. CANBY, Wilmington, Del.

A. V. CLUBBS, Pensacola, Fla.

R. B. REPPARD, Savannah, Ga.

J. M. COULTER, Chicago, Ill.

JAMES TROOP, Lafayette, Ind.

THOS. H. MACBRIDE, Iowa City, Iowa.

J. S. EMERY, Lawrence, Kans.

JOHN R. PROCTOR, Frankfort, Ky.

LEWIS JOHNSON, New Orleans, La.

JOHN W. GARRETT, Baltimore, Md.

JOHN E. HOBBS, North Berwick, Me.

J. D. W. FRENCH, Boston, Mass.

W. J. BEAL, Agricultural College, Mich.

C. C. ANDREWS, St. Paul, Minn.

WILLIAM TRELRASE, St. Louis, Mo.

GEORGE P. AHERN, Fort Missoula, Mont.

CHARLES E. BESSEY, Lincoln, Neb.

WM. R. HAMILTON, Reno, Nev.

WM. E. CHANDLER, Concord, N. H.

JOHN GIFFORD, Princeton, N. J.

EDWARD F. HOBART, Santa Fe, N. M.

WARREN HIGLEY, New York, N. Y.

J. A. HOLMES, Raleigh, N. C.

W. W. BARRETT, Church's Ferry, N. D.

REUBEN H. WARDER, North Bend, Ohio.

WILLIAM T. LITTLE, Perry, Okla.

E. W. HAMMOND, Wimer, Ore.

J. T. ROTHROCK, West Chester, Pa.

H. G. RUSSELL, E. Greenwich, R. I.

H. A. GREEN, Chester, S. C.

THOMAS T. WRIGHT, Nashville, Tenn.

W. GOODRICH JONES, Temple, Texas.

C. A. WHITING, Salt Lake, Utah.

REDFIELD PROCTOR, Proctor, Vt.

D. O. NOURSE, Blacksburg, Va.

EDMUND S. MEANY, Seattle, Wash.

A. D. HOPKINS, Morgantown, W. Va.

H. C. PUTNAM, Eau Claire, Wis.

ELWOOD MEAD, Cheyenne, Wyo.

GEORGE W. McLANAHAN, Washington, D. C.

JOHN CRAIG, Ottawa, Ont.

WM. LITTLE, Montreal, Quebec.



RESERVOIR SITE AT HOUSTON, SOUTHERN CALIFORNIA. SCATTERED FOREST GROWTH.

The Forester.

VOL. V.

FEBRUARY, 1899

No. 2.

Why Persons Interested in Irrigation should be Members of the American Forestry Association.

It is generally believed throughout the West that the destruction of the forests and smaller growth upon the mountain sides has an influence upon the quantity of water available for irrigation. From every section of the arid West statements are received showing the disastrous consequences of burning forest cover. Individuals and communities appeal for something to be done. It is hopeless to expect that anything will be accomplished without united action and sustained effort possible only through a strong association.

It may be said that the protection of the forests is a matter for the General Government, but it must be borne in mind that this is a Government by the people and that no action by the Government can or will be taken unless urged by a large body of citizens. The country is so vast that the wishes of a few citizens cannot prevail in the general struggle unless large numbers join hands in a common cause. A sparsely settled country as that of the West must call to its aid the citizens of the more populous States of the East. The six million of people within the arid region can succeed when their interests are identical with those of the sixty million living outside.

In the matter of forest preservation the interests of East and West are identical, and in his attempt to retain the wooded growth around the headwaters of the streams the irrigator receives the full sympathy of foresters throughout the country. To make this sympathy effective

through the enactment and enforcement of proper laws each irrigator should join the Forestry Association, and thus add his name and contribution toward pushing forward the desired objects. By so doing his efforts—otherwise unavailable—become effective and the work of the association more practical.

The benefits of a strong national organization have already been shown in the legislation obtained after sixteen years of unremitting effort. The disappointments and failure year after year have not discouraged the members and they now have reason to rejoice at what has been done, although this falls far short of their anticipations. The laws passed by Congress for the protection of the forests are not those originally proposed and are recognized as imperfect; they should be modified from time to time as experience demonstrates the necessity and feasibility of so doing. Above all their enforcement must be a matter of keen solicitude. Public sentiment must stand behind the officers charged with the execution of the laws sustaining them in their duties and constantly demanding competence and fidelity. To do this it is necessary to have a strong organization—one which will not be dominated by factions or personal aims, but which with a widely diffused membership shall reflect the larger public wishes.

In the East, where the development of population and industries has shown the need of protecting the forests, the membership of the American Forestry

Association is large. The membership from the older States includes many men of recognized national standing. The Western members, therefore, have the advantage of a group of associates already strong and experienced.

While the irrigators need the aid of the American Forestry Association in bringing about the protection of the forests of the West, the Association on the other hand needs an increase of its membership throughout the arid regions. In order to speak with authority as to the demands of the West it must have a large Western membership and one which

will be truly representative of all the States and Territories. Every man interested in irrigation, or dependent directly or indirectly upon the conservation of the water supply, should become a member and should by his voice and pen unite in creating public sentiment and in sustaining public interest through the trials and vicissitudes which always surround needed reforms. A proper administration of the forests can result only through a strong and united demand and through an adaptation of laws and regulations to fit American conditions.

Letter from the Secretary of Agriculture.

MR. F. H. NEWELL,

Secretary, American Forestry Association, City.

MY DEAR SIR: I believe I have already acknowledged your letter of December 15, notifying me of my election to the presidency of the American Forestry Association for the ensuing year. If not, permit me to say now that my services are at the disposal of the Association, and I am anxious to do anything in my power to further its objects. Our Association has for its object the advancement of one of the greatest of the national industries. It is high time that intelligent action be had regarding our woods, including not only wise management of existing forests, the rehabilitation of denuded areas, the study of forest fires and the possibility of preventing their ravages, but also an inquiry into the effect of grazing on forest ranges, investigations into tree-planting, to ascertain what progress has been made and what trees give promise; and what is wise advice to give our people for future work. I may say generally that the rate at which we are using our woods admonishes us that it can be only a few years at most before the United States must go to the ends of the earth to keep up its supply for commercial purposes.

The Association should continue to bring to public attention, and especially

to the notice of lumbermen, the fact that the present methods of conducting the lumber business are not only wasteful and extravagant but opposed to the best public policy. It should endeavor to demonstrate, by practical examples, the fact that it is possible to remove merchantable timber without destruction to the forest and that better methods of lumbering are not only practicable but profitable; it should demonstrate that its objects are not in any wise to interfere with lumbering, but to assist and to render the business one of permanence instead of being a comparatively temporary occupation. The destruction of the forests at the headwaters of the streams is having a bad effect on the productive power of the country, resulting in high freshets in spring and dry streams in midsummer.

My observation of over forty years in a prairie country leads me to the conclusion that the velocity of our cold winds in winter and hot winds in summer is greatly retarded by timber belts and hedges. The farmer can graze longer in the fall when his stock pastures are protected by belts of woodland and hedges. He can graze earlier in the spring on account of the same protection, thus lengthening his grazing season materially; and it is well known that growing and fattening periods of animal life are

most cheaply carried through by means of grazing. The interspersing, throughout the country, of groves and hedges, furnishes protection for the birds that keep the insect enemies of the farmer in check. In the West, therefore, the Association should endeavor to co operate with the farmers and others dependent directly or indirectly for their subsistence upon agriculture by irrigation. It is generally believed that, through reckless and wanton destruction of forests, injury has come to the streams which furnish water to the arid or drought-stricken lands. Throughout a third, or possibly a half, of the United States, all land values rest upon the ability to obtain an artificial supply of water, and anything

which in the least affects the water supply comes to have vital importance. In arid and semiarid regions, therefore, the Forestry Association should at all times second the efforts of those who are seeking for the conservation of the water supply. It is evident that it is high time for intelligent men, from Maine to California, to give serious attention to the preservation of the forests we have and to increase the forest area throughout every State, particularly where lands have value for no other purpose.

Very truly yours,

JAMES WILSON,
Secretary of Agriculture.

WASHINGTON, D. C.,

Jan. 27, 1899.

Object of Forest Reservations.*

Public forest reservations are established to protect and improve the forests for the purpose of securing a permanent supply of timber for the people and insuring conditions favorable to continuous water flow.

It is the intention to exclude from these reservations, as far as possible, lands that are more valuable for the mineral therein, or for agriculture, than for forest purposes; and where such lands are embraced within the boundaries of a reservation, they may be restored to settlement, location and entry.

The law provides that nothing it contains shall be construed as prohibiting the egress or ingress of actual settlers residing within the boundaries of such reservations, or from crossing the same to and from their property or homes; and such wagon roads and other improvements may be constructed thereon as may be necessary to reach their homes and to utilize their property under such rules and regulations as may be prescribed by the Secretary of the Interior. Nor shall anything herein prohibit any person from entering upon such forest

reservations for all proper and lawful purposes, including that of prospecting, locating and developing the mineral resources thereof: Provided, That such persons comply with the rules and regulations covering such forest reservations.

The settlers residing within the exterior boundaries of such forest reservations, or in the vicinity thereof, may maintain schools and churches within such reservation, and for that purpose may occupy any part of the said forest reservation, not exceeding two acres for each schoolhouse and one acre for a church.

All waters on such reservations may be used for domestic, mining, milling or irrigation purposes, under the laws of the State wherein such forest reservations are situated, or under the laws of the United States and the rules and regulations established thereunder.

The right of way in and across forest reservations for irrigating canals, ditches, flumes and pipes, reservoirs, electric power purposes, and for pipe lines, will be subject to existing laws and regulations; and the applicant or applicants for such right will be required, if deemed advisable by the Commissioner of the

* Abstract from Regulations of the General Land Office.

General Land Office, to give bond in a satisfactory surety company to the Government of the United States, to be approved by him, such bond stipulating that the makers thereof will pay to the United States for any and all damage to the public lands, timber, natural curiosities or other public property on such reservation or upon the lands of the United States, by reason of such use and occupation of the reserve, regardless of the cause or circumstances under which such damage may occur.

For the purpose of preserving the living and growing timber and promoting the younger growth on forest reservations, the Secretary of the Interior, under such rules and regulations as he shall prescribe, may cause to be designated and appraised so much of the dead, matured or large growth of trees found upon such forest reservations as may be compatible with the utilization of the forests thereon, and may sell the same for not less than the appraised value in such quantity to each purchaser as he shall prescribe, to be used in the State or Territory in which such timber reservation may be situated, respectively, but not for export therefrom.

While sales of timber may be directed by the Department without previous request from private individuals, petitions from responsible persons for the sale of timber in particular localities will be considered. Such petitions must describe the land upon which the timber stands by legal subdivisions, if surveyed; if unsurveyed, as definitely as possible by natural landmarks; the character of the country, whether rough, steep or mountainous, agricultural or mineral, or valuable chiefly for its forest growth; and state whether or not the removal of the timber would result injuriously to the objects of forest reservation. Estimate the average diameter of each kind of timber, and estimate the number of trees of each kind per acre above the average diameter. State the number of trees of each kind above the average diameter it is desired to have offered for

sale, with an estimate of the number of feet, board measure, therein, and an estimate of the value of the timber as it stands. These petitions must be filed in the proper local land office, for transmission to the Commissioner of the General Land Office.

Before any sale is authorized, the timber will be examined and appraised, and other questions involved duly investigated, by an official designated for the purpose; and upon his report action will be based. When a sale is ordered, notice thereof will be given by publication by the Commissioner of the General Land Office, in accordance with the law above quoted; and if the timber to be sold stands in more than one county, published notice will be given in each of the counties, in addition to the required general publication.

The time and place of filing bids, and other information for a correct understanding of terms of each sale, will be given in the published notices. The act provides that the timber sold shall be used in the State or Territory in which the reservation is situated, and is not to be exported therefrom.

Every person who unlawfully cuts, or aids or is employed in unlawfully cutting, or wantonly destroys or procures to be wantonly destroyed, any timber standing upon the land of the United States which, in pursuance of law, may be reserved or purchased for military or other purposes, or upon any Indian reservation, or lands occupied by any tribe of Indians under authority of the United States, shall pay a fine of not more than five hundred dollars or be imprisoned not more than twelve months, or both, in the discretion of the court.

Any person who shall willfully or maliciously set on fire, or cause to be set on fire, any timber, underbrush or grass upon the public domain, or shall carelessly or negligently leave or suffer fire to burn unattended near any timber or other inflammable material, shall be deemed guilty of a misdemeanor, and, upon conviction thereof in any district court of the United States having juris-

diction of the same, shall be fined in a sum not more than one thousand dollars, or be imprisoned for a term of not more than two years, or both.

Any person who shall build a camp fire, or other fire, in or near any forest, timber or other inflammable material upon the public domain, shall, before breaking camp or leaving said fire, totally extinguish the same. Any person failing to do so shall be deemed guilty of a misdemeanor, and, upon conviction thereof in any district court of the United States having jurisdiction of the same, shall be fined in a sum not more than one thousand dollars, or be imprisoned for a term of not more than one year, or both.

In all cases arising under this act the fines collected shall be paid into the public-school fund of the county in which the lands where the offense was committed are situated.

The Secretary of the Interior may permit, under regulations to be prescribed by him, the use of timber and stone found upon such reservations, free of charge, by bona fide settlers, miners, residents and prospectors for minerals, for firewood, fencing, buildings, mining, prospecting and other domestic purposes, as may be needed by such persons for such purposes, such timber to be used within the State or Territory, respectively, where such reservations may be located.

This provision is limited to persons resident in forest reservations or within a reasonable distance thereof in the State or Territory where the forest reservation is located who have not a sufficient supply of timber or stone on their own claims or lands for the purposes enumerated, or for necessary use in developing the mineral or other natural resources of the lands owned or occupied by them: Provided, That where the stumpage value exceeds one hundred dollars, applications must be

made to and permission given by the Department.

The law provides that where a tract within a forest reservation is covered by an unperfected bona fide claim, or by a patent, the settler or owner may, if he so desires, relinquish the tract to the United States and select in lieu thereof a tract of vacant public land outside of the reservation, open to settlement, not exceeding in area the tract relinquished. No charge is to be made for placing the new entry of record.

The pasturing of live stock on the public lands in forest reservations will not be interfered with, so long as it appears that injury is not being done to the forest growth, and the rights of others are not thereby jeopardized. The pasturing of sheep is, however, prohibited in all forest reservations, except those in the States of Oregon and Washington, for the reason that sheep raising has been found injurious to the forest cover, and therefore of serious consequence in regions where the rainfall is limited.

The law provides that "any mineral lands in any forest reservation which have been or which may be shown to be such, and subject to entry under the existing mining laws of the United States and the rules and regulations applying thereto, shall continue to be subject to such location and entry," notwithstanding the reservation. This makes mineral lands in the forest reserves subject to location and entry under the general mining laws in the usual manner.

Owners of valid mining locations, made and held in good faith under the mining laws of the United States and the regulations thereunder, are authorized and permitted to fell and remove from such mining claims any timber growing thereon, for actual mining purposes in connection with the particular claim from which the timber is felled or removed.



FLOOD SCENE IN THE VALLEY OF THE MISSISSIPPI RIVER.

What a waste of water!

Such is the natural and involuntary exclamation of the resident of an arid region as he views a scene like the above. And yet in the period of inundation the flood of the Mississippi River is augmented by the contribution of streams which have their sources in the arid

regions. Every drop of water which is permitted to run unused from the arid region represents wasted possibility. There are two means by which the water supply can be conserved, namely: forest preservation and reservoir construction. Wherever forest protection for the water supply is possible it will prove to be a

safe and economical means to this end. With the widest possible extension of protective forest area there would yet be a necessity for the construction of a great many storage reservoirs. On page 37 THE FORESTER presents a view of a large reservoir already constructed. The

frontispiece is a view of the site of a proposed reservoir. It will be noted that, although each is surrounded by a forest growth, in neither case is it of such a character as to prove effective in the conservation of water, hence the necessity of reservoir construction.

Grazing.

Mr. John Muir, the veteran California mountaineer, writes a private letter, dated at Martinez, Cal., January 10, 1899, to a friend in this city, from which THE FORESTER is permitted to make the following extract:

"I suppose you know that 200,000 sheep invaded the Sierra Forest Reservation this last season under a temporary concession made by the Secretary of the Interior, and did incalculable damage. The other California reservations—most of them—and also the National Parks were overrun, trampled and desolated almost as completely as the Sierra Reservation; and I have just been informed that certain land and sheep speculators have sent on agents to Washington to obtain leases of the entire Reservation for grazing purposes during the coming season. This scheme I trust you will oppose to the utmost of your power and opportunity. Not a single flock of sheep should be allowed on any of the dry mountain reservations."

This statement of Mr. Muir is corroborated by information contained in a letter from a Federal forest officer in California. He says:

"A land speculator is now in Washington for the purpose, among others, of obtaining the consent of the Department of the Interior to the granting of leases in this reservation for sheep-grazing purposes. He represents perhaps ten, and possibly twenty, sheep owners. Last season a special concession was made by the Secretary of the Interior to the sheep men, on account of the failure of feed in the San Joaquin Valley, and elsewhere. About 200,000 sheep were driven into the reservation. The injury

which these sheep wrought in this part of the public domain is patent to everyone who has traversed any considerable part of the reservation. If the same ratio of injury were maintained, in less than fifty years there would be no forests there worth protecting.

"If the object of making such reservations is to preserve the forests, and the water resources, then that purpose will be defeated by allowing sheep grazing as is desired by a very few men. Deforestation has already begun here. The prevailing climatic conditions are entirely different from those which exist in the reservations in more northern latitudes. There the rainfall is very great, the streams are strong and full in the summer season; the undergrowth is rank; and it may be that sheep grazing under such conditions would not result in any great damage to the forests. I can only speak with certainty of this reservation where I have made extended personal observations. The climate here is semi-tropical. The reservation is in what may be called the dry belt. Hardly more than five to seven inches of rainfall can be expected. The mountain streams flowing out of the reservations have been greatly diminished. The waters no longer flow in the summer season across these great arid plains. A part of this shrinkage of streams can be traced directly to sheep grazing. The sheep destroy the undergrowth, and their herders are the prolific source of the great number of fires which break out in the reservation. They change the spongy character of the ground; they produce aridity and desolation wherever they go. The pro-

cess of deforesting will go on as long as this sheep grazing prevails.

"The interests of a few in the sheep business are set over against the interests of the larger community which represents an investment of many millions of dollars. Water for irrigation has become to them a matter of vital necessity. All the property represented by more than 4,000 acres of citrus orchards, and more than 10,000 acres of raisin vineyards, in this county and the adjacent one, is menaced by this sheep-grazing proposition.

"The forests cannot be preserved in a proper condition while sheep are allowed to range the reservation. This is the case in brief. I omit many details, but submit the facts."

Another Federal forest official from the same State and writing about the same matter says:

"I want to call your attention to the fact that it is impossible to reforest this reserve as long as sheep are allowed to graze here. When the timber has been removed the ground will be seeded from the surrounding forest and, as the ground does not freeze, the young pines come up as soon as the snows melt. The sheep are especially fond of pine; they bite the tops off of these young seedlings, thus killing them. Unless, the Government can, in some way, keep the sheep off of this reservation it cannot be re-

forested. I know of several places, owned by private parties, that have been enclosed for the last twenty-five years, thus protecting them from sheep, and which have also been kept free from fires. The timber was cut from these lands before they were enclosed, yet they are now reforested with trees which measure from ten to twenty-four inches in circumference, while surrounding lands, where sheep have been allowed to run each year, have nothing but a little brush, even the grass being killed. This country produces a new forest growth very rapidly as the ground rarely freezes under the snow, and if protected from fire and sheep so that the natural mulching of pine needles and leaves is not destroyed by fire or tramping, it will prevent the soils from being washed off. Aside from the question of reforesting it would only be a few years until the sheep would destroy the water supply of the San Joaquin valley. I believe the Government could better afford to buy hay and grain, and feed the sheep at its own expense, than to allow them to destroy this forest, for in destroying that they are destroying the valley. In the best years in the past the valley has not had enough rain to produce a crop and its thousands of inhabitants depend on this forest for their water supply. I trust that we will have your support in protecting the forest from sheep."

Forest Administration.

Some of the supervisors and patrolmen in the employ of the Government on the forest reserves are being laid off owing to the fact that the appropriation has almost been expended. The total amount of the appropriation for last year was only \$75,000. The fires in this section cost \$15,000, or almost one-fourth of the entire appropriation. It was the intention of the department to have the patrolmen construct trails in the reserve during the winter months and this will yet be done so far as the funds will admit, but the majority of the supervisors

and patrolmen will have to be laid off until next April or May. It is to be regretted as there is a great need of trails through certain portions of the reservation.—*Azusa (Cal.) Pomo-Tropic.*

The case against George Witcher and others for cutting timber on Government land above Cripple Creek, was placed on trial in the United States Court yesterday. The defendants are accused of cutting 500,000 feet of timber belonging to Uncle Sam. The lumber has been seized by the Federal authorities. The

defense sets up the claim that the timber was cut for mining purposes and not to be shipped away.—*Denver (Colo.) News, January 11.*

Forest Supervisor Taggart has repeated the edict that hereafter no one will be allowed to take wood of any kind, either fallen or standing, from the San Jacinto reserve. Any violation on the part of any one will be considered as trespassing and will be dealt with as such.—*Riverside (Cal.) Press.*

Acting on official information, Commissioner Binger Hermann of the General Land Office has directed a special agent at Juneau, Alaska, to make a complete investigation and prompt report with a view to stopping the denudation of the forest tracts. The action is based on notice sent the Department in regard to the cutting going on in many places; that Indians on Annette Island, who are aliens, having been transported there from British Columbia, are cutting valuable spruce and cedar on all the adjoining islands and have established a saw mill on Graniva island, near Kechcan, where they are manufacturing lumber and carrying on extensive traffic. In his instructions Commissioner Hermann states that neither the natives nor other residents of Alaska are allowed under the law to cut timber for market from the lands in Alaska belonging to the United States, until after first purchasing the timber from the Government through the Secretary of the Interior.

Some additional light is thrown by the following dispatch dated Cheyenne, Wyo., January 17, upon the doings of the Rock Springs Lumber Co., in the Green River valley in Wyoming, mention of which appeared in the last issue of THE FORESTER:

The surveillance of the United States Govern-

ment is becoming more strict than ever. The newest sensation in lumber depredations is laid to what is known as the Rock Springs Lumber Co., which has employed about 300 men cutting timber near the head of the Green River, in Fremont and Sweetwater counties. The matter is under investigation by United States Agent Abbott. The company claims to have complied with the law in every particular; saying that it has been cutting timber only on lands either acquired from the State of Wyoming which had selected the lands under Government grant, or bought with soldier scrip from the Government. They say that the charges of timber depredations were originated by a set of hunters and guides who have established lodges for the entertainment of foreign and Eastern hunters. The investigation will be pursued.

From the North Yakima *Times* it is learned that the supervisor of the Mount Rainier Reserve met the stock rangers of the contiguous region in the State of Washington, on January 16. Although he did not make any allotments he received applications for grazing permits. It was suggested that the cattle men and sheep men get together and agree upon some plan to harmonize their interests. The stockmen were warned against overcrowding the reserves with cattle and sheep, and that the ill-advised actions of the few in violating the rules would operate against all. It having been proposed to limit the number of stock to be grazed in the reserve hereafter to 325,000 head and to define the grazing season as continuing from June 15 to September 25 of each year, the stockmen appointed a committee consisting of five cattle men and five sheep men, to settle the matters under dispute. This committee drew up an agreement by the terms of which certain parts of the reserve are to be regarded only as cattle ranges and are not to be invaded by bands of sheep. The charge for pasturage of sheep is to be at the rate of \$5.00 per thousand, single bands not to exceed 2,500 in number. The fee for grazing cattle has not yet been determined upon.

Opposition to Reservation Policy.

The National Stock Growers' Convention met in Denver, Colo., January 26-27. It had been previously announced that the convention would be given an opportunity to put itself on record concerning the policy of excluding sheep from the forest reservations. Mr. John C. Mackay, of Utah, brought the subject up for discussion by introducing a resolution urging the Department of the Interior to abrogate the rules prohibiting the grazing of sheep on forest reserves. In support of his resolution Mr. Mackay said, in part:

My observation of twenty years in the mountains teaches me that the sheep do not damage any timber that is really valuable for mercantile purposes. Their eating of the grass in the timber is a safeguard against forest fires. If the executive orders prohibiting the sheep from ranging in the reserves is enforced the industry will be immeasurably injured. Western citizens have just cause for complaint. We should adopt such means as will bring about the desired change.

A substitute resolution was introduced by Mr. A. R. King, a delegate from Colorado. This substitute was, in effect, a negation of the original resolution and proposed to urge upon the Secretary of the Interior the wisdom and expediency of a strict enforcement of the rules excluding sheep from the reserves. In advocating its adoption Mr. King said:

The Government of the United States never attacked the interests of any citizen unjustly, nor did the American Forestry Association. For instance, when the Battlement Mesa of Colorado was reserved it was mainly to protect the water supply, upon the request of hundreds of citizens of the counties of Delta and Mesa on the western slope, except the owners of sheep. Those who wanted the protection were fruit growers and also stock raisers to more or less extent. The order of the Department and the law are the result of growth, development of the country and the observation of experts on the effect of herds on the water supply and timber on the public lands. The order did not emanate from the influence of the cattle man as against the sheep man. Sheep raising was pronounced injurious to the water supply and the timber by experts. Evidence showed that re-growth of timber follows forest fires, but never follows sheep grazing. Sheep destroy

all the young sprouts each year. The sprouts do not come back again until sheep are taken away.

Take the county of Delta, for instance, where people are engaged in diversified industries. The Government says the good of the many is superior to that of the few. We would as soon be the slave of the cattle king as of the sheep baron. (Applause.) We insist that no 15,000 sheep should be driven into our headwaters to pollute our supply first and then destroy it. The cows and steers do not eat out everything, but the sheep do eat out the willow leaves as high as they can reach, they take out the bunch grass and all they can find, and then tramp the soil so solidly that the water rushes off the surface quickly in the spring, whereas if the soil is left in its natural state snow water will percolate and eventually serve for irrigation purposes when water is needed.

The people of Utah think the same as we do. Take the Uintah reservation. People residing in that community took the position that the sheep destroyed the range and supported their allegations by proof before the Government excluded the sheep to preserve the agricultural interests that were watered by the country included in that reserve.

Mr. Smith, a delegate from Utah, replied to the arguments of Mr. King, declaring that the statements that sheep destroy the range and the water supply was a theory not substantiated by facts. He declared if the sheep had killed the range the sheep in Utah would not have increased as they have. Continuing, Mr. Smith said:

They are a benefit to the range. I can show you ranges in Utah where sheep have been pastured for years and it is better now than ever. Years ago where settlers located in Utah on streams and had no water, now they have plenty, hence the sheep could not have exercised a deteriorating influence upon it. They have been grazing upon the headwaters of those streams right along.

There was scarcely a sign of applause for Mr. Smith. It was evident the sheep men had little sympathy from the convention. A. J. Bothwell, delegate from New Mexico, briefly attacked the arguments of the sheep advocates, saying several witty things at their expense and creating rounds of laughter, adding in conclusion:

But we must look at the matter in a broad

sense, and recognize the fact that we must not discuss it from the standpoint of a cattle man or as a sheep man.

Mr. Barnes, of Arizona, in discussing the question said:

On some of the Arizona ranges where the sheep have been for twenty-five years the range is as good as ever. It seems the conditions are different in the various States. I would offer an amendment to the original resolution recommending that the order be changed so as to prohibit all animals from the forest reserves except under such regulations as the Secretary of Agriculture may prescribe for each.

Col. J. M. Dougherty, of Nebraska, moved the previous question, but withdrew it to allow Mr. Mackay, of Utah, to make an explanation. Mr. Mackay spoke with intense feeling as he said:

I am sorry to see you gentlemen admit by your action the theory that sheep are a curse to our country. I realize the way this convention feels. I say that to-day in Utah, where we irrigate more land in proportion to the total area than any other State, we have plenty of water. We do not need the timber reservations for protection, but we do need the grazing privileges. Our sheep industry goes down without them.

The previous question being again demanded it was ordered, showing an overwhelming vote in favor of the strict enforcement of existing regulations. The Barnes amendment was then adopted also. This placed the convention on record as favoring the prohibition of all grazing on the forest reserves except when the Secretary of the Interior may issue orders permitting such grazing as the diversified interests concerned may approve of.

A PRACTICAL VIEW.

The friends of the forest movement have so often been called "blind enthusiasts" and "misguided theorists," that it is a pleasure to be able to quote from authorities that cannot, even by inference, be accused of taking any other than a practical view of an economic question. The *American Lumberman*, from which the following is copied, certainly cannot be accused of sentimentalism:

The public, through the forestry advocates and the public prints, has become fairly settled

in the belief that forests covering the land about the headwaters of streams conserve the fountains and maintain a good stage and equable flow of water throughout the dry season.

This doctrine was the strong argument for passing the laws for the segregation of the national forest reserves in the mountain districts of the West. Not only has the National Government set apart such reserves but State governments have taken up the enterprise and legislatures are passing laws to preserve the moisture of the soil and thus maintain the streams. A notable example is in New York, which has provided for a State park in the Adirondacks. Pennsylvania, Wisconsin, Minnesota and other States have done something in behalf of forestry. The governor of Utah is also stirred up in behalf of the forests of that State. In his late message to the legislature he said that the increasing spoliation of the timber of the State was affecting seriously the source of the water supply for the valleys, and something should be done to arrest denudation. C. L. Sessions, of Bountiful, Utah, writes to the *Salt Lake Herald* as follows:

I notice in the governor's message that he says the increasing spoliation of our timber areas is seriously affecting the source of water supply for our valleys. I would like to ask what relation the timber in the mountains has to supply of water in the valleys, and how. If the governor is a close observer, or had asked a canon man, he never would have made such a remark. Every person acquainted with the source of supply knows that the water used for irrigation does not come from the timber sections but from the drifts or pockets where the wind piles the snow in great banks, or from slides which come down from the mountain sides and pack the snow in ravines. Timber hinders this, for it is a windbreak and prevents the snow from making drifts. It also stops the slides from piling the snow up in vast banks to draw from in late irrigation, which is the water we want. The snow that lies all over the ground and melts just moistens the ground where it lies and never gets into the creeks at all.

Mr. Sessions proceeds to ask the governor what the bona fide settlers are to do for timber if cutting is to be stopped, and calls for practical men to make laws for the protection of timber. He asks that business men, farmers and laboring men shall have their say in determining on a method to control the forests.

After commenting to the effect that

the snow drift theory may be a correct one in given instances, the *Lumberman* concludes:

But there may be climatic reasons for preserving the forests, and there may be economic reasons. Forestry advocates as a rule do not expect to deprive the people of necessary timber, but seek only to have the laws enacted so cutting can be carried on in a way that shall preserve and perpetuate the younger growth. What they aim at is to stop indiscriminate slaughter, without reference to a future supply, and by preserving carefully and maintaining the growth of young trees to keep forests on public lands practically intact. No wise economist can object to that. It seems to the *Lumberman* that the objectors to public forestry are mainly those who want to go on to Government or State domain and steal timber, thus avoiding the necessity of buying land and paying taxes thereon.

Philip Wilson, of Fort Collins, Colo., writing to a local paper in opposition to the forest reserve policy, which, fortunately and for good reasons, is very popular in that enterprising community

of irrigators, argues along the same line that Mr. Sessions does. Each argues from special instances to general conclusions; each seemingly forgets the office of the forest cover in preventing erosion on sloping surfaces and apparently neither believes that water can or does percolate through the soil. Both writers have failed to note, in recording their observations, that not all the snow drifts into dark canons and gorges, that indeed many drifts form on southern exposures where rapid melting is early and certain. Mr. Wilson even goes so far as to advocate the clearing of all the mountain forests in the interest of the irrigation agriculturist, finally concluding with the following language which would seem to substantiate the *Lumberman's* conjecture as to the real motive of opposition:

The Poudre valley is one of the best farming countries in the West. We need full swing at the timber for building and fencing. Why send to Texas for timber when it is here and plenty of it? I say, clear this Government domain of the fences so that the people can have free access to go where they want to and get timber where they can find it.

Lumber Industry.

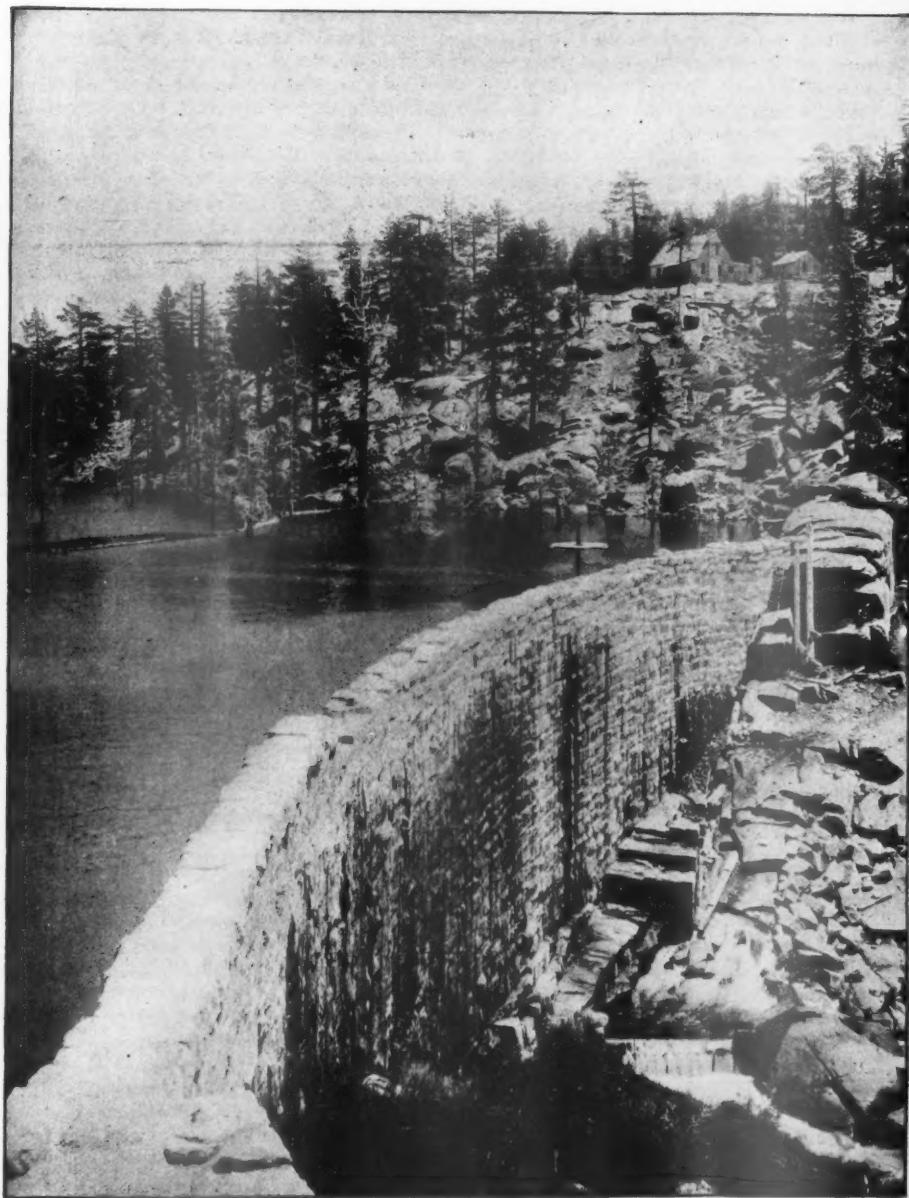
Log Salvage.

Under the caption of "A Dangerous Bill" the *American Lumberman* has the following to say in regard to pending legislation:

Mr. Bromwell, of Ohio, has introduced a bill in the House of Representatives which it will be well enough for the lumbermen who are engaged in floating logs in the streams of the United States to give some attention to. The bill was presented some little time ago, and has already been referred to the committee on interstate and foreign commerce. Under the operations of this law if a lumberman should chance to lose, as lumbermen are apt to do, some of his logs, by floods or other accidents, it would be entirely possible for any one picking up these logs to collect from 25 to 50 cents for each log. This would mean anywhere from \$3.50 upwards a thousand additional cost to the log owners. The condition on the Mississippi River will serve to illustrate. It is not an infrequent occurrence in the spring for logs to break away at Minneapolis and be carried into the river at points between St. Paul and Hastings. Before the machinery for gathering these logs into rafts again could be put into motion, every owner of

a little boat could gather such logs as he could reach and then collect by process of law the large fees provided for in this bill. It is the practice of the operators on the Chippewa River, and particularly of the manufacturers at points on the middle Mississippi River, to float their logs down in the open Chippewa River to the Mississippi, and then for a considerable distance in the Mississippi to the West Newton rafting works. Unless this law were supplemented by some other provision, all these logs would become subject to the pirating acts of any parties who could find a profit in gathering them and selling them under the terms of the law. In rafting logs to the down-river points, it not infrequently is the case that a raft is broken up and the logs set afloat. Here again the log owners might be subjected to the penalties prescribed in this bill.

The conditions on the Mississippi are probably not different from those on other streams where logs are floated. Log owners have found that they can gather their logs at a great deal less cost than named in this bill. Some vigorous protests should be sent to Washington against the passage of this bill, which it appears that Mr. Bromwell has introduced by request. At whose request has not transpired, but presumably parties in his own State or Kentucky.



BEAR VALLEY DAM, SOUTHERN CALIFORNIA. SCANT FOREST PROTECTION.

INTEREST IN UTAH.

In his message to the legislature, Governor Wells touched upon an important question when he referred to the protection of timber areas from the devastation which has been jeopardizing not only the timber supply, but the water supply of the State.

Traveling over the mountainous sections where once the Pine forests were almost impenetrable, one is confronted with evidences of Government neglect and the spoliation of the portable saw-mill, great barren tracts of stump-covered ground, with piles of sawdust in the center, showing where indiscriminate milling was carried on before the outfit had been moved to another grove of virgin timber.

Something ought to be done, as the governor suggests, to obtain favorable consideration from the Federal Government, to whom alone the State must look for aid in this matter. For although the State land board is "authorized to set apart and reserve from sale such tracts of timber lands and the timber thereon as may, in the opinion of the board, be required to preserve the forests of the State, prevent a diminution of the flow of rivers and aid in the irrigation of arid lands," the governor calls attention to the fact that such provision applies only to the State lands which are needed for other purposes, and which the General Government obviously never intended to

have remain in their natural state as forest reservations.

Members of the legislature would do well to heed the governor's suggestion in reference to memorializing Congress on this matter.

If the Government does not come to the rescue of the States in the effort to stop the devastation which has already, in many sections, gone too far, the people will ultimately be compelled to resort to the expedient of planting forests like orchards, and bringing them up by hand. It were well to profit by the example of some of the older nations.

Nor is the destruction of forests compassed altogether by design or for profit. Carelessness contributes to the waste. Every year there are forest fires which destroy infinitely more of wealth and prospects than the timber represents.

Last year the fires in Wyoming and Western Colorado caused an enormous loss. There should be measures and precautions adopted by the General Government and powers vested in the several States to prevent this double destruction which results from axe and fire.

There are interests to be consulted and rights to be regarded in the selection of tracts for reserves, but the necessity of some definite, decisive action while there is yet time to accomplish good, is imperative, it seems, in the interest of agriculture and for the benefit of future generations.—*Salt Lake City Herald*.

The sparrow has found an unexpected champion in the Prime Minister of France. The farmers have recently been agitating in favor of the extermination of the little bird, and succeeded so far that a decree was submitted to Premier Meline for signature, giving orders for the destruction of the bird throughout the country by all available means. Before giving his sanction to the measure the Prime Minister determined to make an investigation, in the course of which he has received so much information in favor of the birds, especially from the Forest Department, that he has not only

refused to sign the decree, but has announced that he is about to take steps to promote the increase of the species in consequence of its usefulness. It seems that the harm they do to the crops is more than counterbalanced by the benefits which they confer in destroying the caterpillars, worms and other insects that are so detrimental to trees. A Western exchange, which is evidently skeptical as to the alleged usefulness of the sparrow, suggests that now is a good time to get rid of the sparrows in this country, and pertinently inquires what M. Meline will give for them. But,

seriously, the European sparrow is of doubtful value to the forests of this country. Not only does the bulk of its food consist of grains, and matters other than insects, but its worst feature, as demonstrated by the investigation of Dr. C. Hart Merriam of the U. S. Department of Agriculture, is its antagonism toward the native insectivorous birds which apparently results in the decrease of the latter.

It is reported that mining revival in Leadville and vicinity has given an impetus to the mine timber business, and that industry has trebled in the last six months. Some timber cutters have contracts with Leadville mines to supply them with timbers for a year to come, and the coming year will witness an amount of activity in this line and a demand on the neighboring forests unprecedented in the history of that great Colorado mining district.

Recent Forestry Meetings.

California.

A meeting was held in the hall of the Chamber of Commerce in San Francisco, Cal., on January 21, for the discussion of matters pertaining to forest and water conservation. It was a representative gathering, the fifty-four delegates holding credentials from twenty-four different organizations, including boards of trade, chambers of commerce, horticultural societies, granges, farmers' clubs, the University of California, the Yosemite State Commission, the Miners Association and the Sierra Club. The meeting resulted in the organization of a society to be known as "The California Society for Conserving Waters and Protecting Forests." The following officers were elected: President, J. M. Gleaves; vice presidents, J. M. Walling, Wm. H. Mills and Abbot Kinney; secretary, E. H. Benjamin; treasurer, Ernst A. Denike. An executive board of seventeen members was also chosen. Resolutions were adopted requesting the governor to appoint a non-salaried commission to report on the subject at the time of the meeting of the next legislature, and petitioning the present legislature to create a school of forestry in connection with the State University.

Minnesota

The twenty-third annual meeting of The Minnesota State Forestry Association was held January 10, at Minneapolis. Though the attendance was not large, the session was rendered interesting by its spirit.

President Owen was prevented by sickness from attending, his place being taken by Capt. J. N. Cross. Capt. Cross called the attention of the society to the efforts being made by Col. J. S. Cooper, of Chicago, toward the establishment of a national park at the headwaters of the Mississippi, and urged its co operation with him. He also spoke of the growing interest in forestry evident throughout the country. The Cross Bill was then discussed. It was decided to reintroduce this bill, and a committee was appointed to look after it.

A paper from Professor Fernow was delayed and came too late to be read. "Utilizing Our Waste Lands for Forestry Purposes" was the title of an interesting and careful paper presented by Gen. C. C. Andrews. The suggestions which it contained were based upon an outline by Dr. C. A. Schenck. THE FORESTER hopes soon to present it in part. At the afternoon session, Profes-

sor Green's paper, "What About a Forestry School in Minnesota," led to a discussion which ended in the adoption of a resolution recommending to the Board of Regents of the University that a tract of original forest be obtained or set aside to illustrate the principles of forestry. Then followed "Native Evergreens of Minnesota," by Mr. D. A. Gaumnitz, of the School of Agriculture. In the debate which ensued spruce received most attention, and was held to be even more valuable than white pine. Papers by Mr. H. B. Ayres and Mr. C. L. Smith were read, but not discussed owing to business before the meeting.

The following officers were elected: President, Capt. J. N. Cross, Minneapolis; secretary, Geo. W. Strand, Taylor's Falls; treasurer, R. S. Mackintosh, St. Anthony's Park; and one vice president for each Congressional district.

Among the resolutions adopted, one commended the work of Mr. Gifford Pinchot and the Division of Forestry, and another advocating legislation for an appropriation of \$35,000 for a building for Horticulture, Forestry, Botany and Physics at the School of Agriculture.

Nebraska.

At the recent annual meeting of the Nebraska Horticultural Society, held at Lincoln, a committee was appointed to arrange for the organization of a park and forestry association. Nebraska is distinguished as the State in which was originated the custom of designating one day in each year to be known as Arbor Day and to be observed, especially by school children, as a tree-planting holiday. Although millions of trees have been planted, this is said to be the first effort at organization on the part of the planters. Much of the State lies within the semi arid region, yet even there it has been ascertained by experiment that there are certain hardy species of trees, especially conifers, which survive the rigors of a seemingly unfriendly climate. The committee appointed by

the Horticultural Society consists of C. S. Harrison, of York, chairman; ex-Gov. R. W. Furnas, of Brownsville; and E. F. Stephens, of Crete.

Utah.

The Utah Forestry Association held a meeting in the office of its president, Dr. John R. Park, in Salt Lake City, January 20. There was a fair number in attendance, and several new members were elected.

A communication from Dr. J. E. Talmage, president of the Microscopical Society, inviting a combination of the Microscopical Society, Mathematical and Historical Societies and the Forestry Association, for the purpose of forming a joint body under some such title as Utah Academy of Sciences. Opinions as to the advisability of such a step varied and on motion a committee was appointed to confer with Dr. Talmage on the subject and to report at the next meeting.

Another committee was appointed to confer with the committee on forestry of the State legislature for the purpose of obtaining such legislation on forestry matters as may be deemed beneficial to the State.

The creation of the office of a State fish, game and forestry commissioner was advocated, as well as the enactment of stringent laws against leaving camps without extinguishing camp fires. The advisability of following the example of Colorado, where United States forest wardens are, by consent of the General Government, appointed State fish and game wardens, was suggested.

Prof. W. G. Roylance reported that a majority of the people of Utah County desired the United States to create a forest reservation in the southeastern part of the county, at the same time allowing some timber cutting for domestic purposes and some grazing under proper directions. After some discussion the meeting adjourned subject to the call of the president.

Educational.

The New York State College of Forestry has a 30,000-acre demonstration area of Adirondack forest. The terms of sale are agreed on, and only a survey delays the formal turning over of the property. It contains some virgin forest, some from which the lumbermen have taken the choice timber, and some from which forest fires have taken all the timber. The college can, therefore, on the start, demonstrate all sides of forestry, from planting bare tracts to lumbering and getting the logs to market.

Of this institution, *Schweizerische Zeitschrift für Forstwesen*, published at Bern, Switzerland, says:

We must grant that the Americans not only are in earnest in their efforts to further their forestry, but are able to choose with keen vision and true comprehension the proper means for attaining the desired ends by the shortest road.

The *Indian Forester*, published at Mussoorie, India, in reviewing the prospectus of the College of Forestry, makes the following comments:

We may confess at once that after reading through the proposals for the latter, which may be termed "stiff all through," and the names of the President and thirty-two professors and instructors who will be engaged in the scholastic work, we reflected with no small amount of relief that our school and college days are over. In the college courses of instruction, we should be inclined to say that too many subjects in too many parts are proposed to be taught, when for instance we read that eight different courses of geology are proposed. In all, if we read aright, as at English universities, there are about fifteen hours fundamental and four hours supplementary or elective work per week; and that excursions and laboratory work only count one hour for every two and a half or three actually spent. Botany is taught in the first three years, forestry in the last two only; thus students who only take the three-years' course lose a large part of the latter. We note that an average of two hours per week is to be spent during each of the last seven terms on political economy; while the subject of pisciculture and venery is also taught. A thesis will be required from every student in his fourth year, and it is noted that there is an ample field for graduate and research work which will be encouraged. We see no mention of the teaching of accounts. A knowledge of these is certainly required in the work of a forest officer. In geology we note that one

week's practical work is to be done in the field; in addition we would say, regarding this and the origin and nature of soils, the geology of soils, the way in which they take their origin from certain formations of rock, and the kind of soil formed from the latter is, for a forest officer, far more important than knowing the names of fossils; similarly with the knowledge of how to read a geological map and the way in which strata lie. As regards forest protection, an account of fire conservancy as it will be taught and practiced, will be of interest to forest officers of this country. We wish the New York State College of Forestry every success, both in its teaching and its results, large and small.

The board of directors of the California State Board of Trade discussed, at a recent meeting, the preservation of the forests of the West. A committee was appointed, consisting of John P. Irish, Craigle Sharp and W. H. Mills, to confer with the board of regents of the University of California at the meeting of the latter on the 21st inst. The committee was instructed to urge the faculties of the universities of Berkeley and Stanford to create a chair of forestry in their respective institutions.

The annual report of State Engineer John E. Field, of Colorado, contains some valuable suggestions with regard to forest fires. It says in part:

Forest fires during the last year have been more than ever destructive and numerous, and I would urge that some law be passed to prevent, if possible, these conflagrations, even to the extent of prohibiting hunters and campers from invading the timber reserve or thickly wooded portions of our mountains when there has been a long spell of dry weather. I would then urge that some effective measure be adopted for fighting the fires when first discovered. The entire irrigation section is dependent on the preservation of our forests, which I believe can never be replaced no matter what the necessity and regardless of expense, for with the forests the soil alike disappears, is washed off by rains and rapidly melting snows, and we have in prospect bare rocky ranges without trees or soil. I would recommend, instead of building reservoirs to hold our flood waters, that the forests, those great natural reservoirs, be preserved to the end that our floods be not increased, and as a consequence, our summer flow decreased.

sor Green's paper, "What About a Forestry School in Minnesota," led to a discussion which ended in the adoption of a resolution recommending to the Board of Regents of the University that a tract of original forest be obtained or set aside to illustrate the principles of forestry. Then followed "Native Evergreens of Minnesota," by Mr. D. A. Gaumnitz, of the School of Agriculture. In the debate which ensued spruce received most attention, and was held to be even more valuable than white pine. Papers by Mr. H. B. Ayres and Mr. C. L. Smith were read, but not discussed owing to business before the meeting.

The following officers were elected: President, Capt. J. N. Cross, Minneapolis; secretary, Geo. W. Strand, Taylor's Falls; treasurer, R. S. Mackintosh, St. Anthony's Park; and one vice president for each Congressional district.

Among the resolutions adopted, one commended the work of Mr. Gifford Pinchot and the Division of Forestry, and another advocating legislation for an appropriation of \$35,000 for a building for Horticulture, Forestry, Botany and Physics at the School of Agriculture.

Nebraska.

At the recent annual meeting of the Nebraska Horticultural Society, held at Lincoln, a committee was appointed to arrange for the organization of a park and forestry association. Nebraska is distinguished as the State in which was originated the custom of designating one day in each year to be known as Arbor Day and to be observed, especially by school children, as a tree-planting holiday. Although millions of trees have been planted, this is said to be the first effort at organization on the part of the planters. Much of the State lies within the semi arid region, yet even there it has been ascertained by experiment that there are certain hardy species of trees, especially conifers, which survive the rigors of a seemingly unfriendly climate. The committee appointed by

the Horticultural Society consists of C. S. Harrison, of York, chairman; ex-Gov. R. W. Furnas, of Brownsville; and E. F. Stephens, of Crete.

Utah.

The Utah Forestry Association held a meeting in the office of its president, Dr. John R. Park, in Salt Lake City, January 20. There was a fair number in attendance, and several new members were elected.

A communication from Dr. J. E. Talmage, president of the Microscopical Society, inviting a combination of the Microscopical Society, Mathematical and Historical Societies and the Forestry Association, for the purpose of forming a joint body under some such title as Utah Academy of Sciences. Opinions as to the advisability of such a step varied and on motion a committee was appointed to confer with Dr. Talmage on the subject and to report at the next meeting.

Another committee was appointed to confer with the committee on forestry of the State legislature for the purpose of obtaining such legislation on forestry matters as may be deemed beneficial to the State.

The creation of the office of a State fish, game and forestry commissioner was advocated, as well as the enactment of stringent laws against leaving camps without extinguishing camp fires. The advisability of following the example of Colorado, where United States forest wardens are, by consent of the General Government, appointed State fish and game wardens, was suggested.

Prof. W. G. Roylance reported that a majority of the people of Utah County desired the United States to create a forest reservation in the southeastern part of the county, at the same time allowing some timber cutting for domestic purposes and some grazing under proper directions. After some discussion the meeting adjourned subject to the call of the president.

Educational.

The New York State College of Forestry has a 30,000-acre demonstration area of Adirondack forest. The terms of sale are agreed on, and only a survey delays the formal turning over of the property. It contains some virgin forest, some from which the lumbermen have taken the choice timber, and some from which forest fires have taken all the timber. The college can, therefore, on the start, demonstrate all sides of forestry, from planting bare tracts to lumbering and getting the logs to market.

Of this institution, *Schweizerische Zeitschrift für Forstwesen*, published at Bern, Switzerland, says:

We must grant that the Americans not only are in earnest in their efforts to further their forestry, but are able to choose with keen vision and true comprehension the proper means for attaining the desired ends by the shortest road.

The *Indian Forester*, published at Mussoorie, India, in reviewing the prospectus of the College of Forestry, makes the following comments:

We may confess at once that after reading through the proposals for the latter, which may be termed "stiff all through," and the names of the President and thirty-two professors and instructors who will be engaged in the scholastic work, we reflected with no small amount of relief that our school and college days are over. In the college courses of instruction, we should be inclined to say that too many subjects in too many parts are proposed to be taught, when for instance we read that eight different courses of geology are proposed. In all, if we read aright, as at English universities, there are about fifteen hours fundamental and four hours supplementary or elective work per week; and that excursions and laboratory work only count one hour for every two and a half or three actually spent. Botany is taught in the first three years, forestry in the last two only; thus students who only take the three-years' course lose a large part of the latter. We note that an average of two hours per week is to be spent during each of the last seven terms on political economy; while the subject of pisciculture and venery is also taught. A thesis will be required from every student in his fourth year, and it is noted that there is an ample field for graduate and research work which will be encouraged. We see no mention of the teaching of accounts. A knowledge of these is certainly required in the work of a forest officer. In geology we note that one

week's practical work is to be done in the field; in addition we would say, regarding this and the origin and nature of soils, the geology of soils, the way in which they take their origin from certain formations of rock, and the kind of soil formed from the latter is, for a forest officer, far more important than knowing the names of fossils; similarly with the knowledge of how to read a geological map and the way in which strata lie. As regards forest protection, an account of fire conservancy as it will be taught and practiced, will be of interest to forest officers of this country. We wish the New York State College of Forestry every success, both in its teaching and its results, large and small.

The board of directors of the California State Board of Trade discussed, at a recent meeting, the preservation of the forests of the West. A committee was appointed, consisting of John P. Irish, Craigie Sharp and W. H. Mills, to confer with the board of regents of the University of California at the meeting of the latter on the 21st inst. The committee was instructed to urge the faculties of the universities of Berkeley and Stanford to create a chair of forestry in their respective institutions.

The annual report of State Engineer John E. Field, of Colorado, contains some valuable suggestions with regard to forest fires. It says in part:

Forest fires during the last year have been more than ever destructive and numerous, and I would urge that some law be passed to prevent, if possible, these conflagrations, even to the extent of prohibiting hunters and campers from invading the timber reserve or thickly wooded portions of our mountains when there has been a long spell of dry weather. I would then urge that some effective measure be adopted for fighting the fires when first discovered. The entire irrigation section is dependent on the preservation of our forests, which I believe can never be replaced no matter what the necessity and regardless of expense, for with the forests the soil alike disappears, is washed off by rains and rapidly melting snows, and we have in prospect bare rocky ranges without trees or soil. I would recommend, instead of building reservoirs to hold our flood waters, that the forests, those great natural reservoirs, be preserved to the end that our floods be not increased, and as a consequence, our summer-flow decreased.



SKY LINE CANAL, COLORADO ; PROTECTING FOREST KILLED BY FIRE.

THE FORESTER.

PUBLISHER'S ANNOUNCEMENT.

THE FORESTER is published monthly by the American Forestry Association at

No. 117 Corcoran Building, Washington, D. C.,

where all communications should be addressed.

The subscription price is One Dollar a year, and single copies are sold at ten cents.

Make all checks, drafts, etc., payable to THE FORESTER.

FOREST ORGANIZATION.

Among the resolutions adopted by the Pomological Society of Southern California at its recent meeting at Covina are the following:

Resolved, That a plan of work in forestry and water preservation should be framed and worked to.

Resolved, That an efficient forest patrol force can only be formed by disciplined men of good physical capacity.

Resolved, That the plan formulated for forest work in the Sierra Madre at our Covina meeting be forwarded to the Secretary of the Interior, the Secretary of War and the Secretary of Agriculture.

The plan mentioned as having been formulated at the Covina meeting includes, in brief, a proposition to form a forest patrol by details from the regular Army to serve under forest officers. The proposition itself is not a new one, but, under new conditions, there seem to be reasons why it can no longer be regarded as being either practicable or expedient. At present the work of the Government pertaining to forestry is distributed among three agencies, the General Land Office and the Geological Survey, both in the Department of the Interior, and the Division of Forestry, in the Department of Agriculture. This distribution of powers and duties has not resulted in any direct conflict of authority. It has, however, served to demonstrate that, owing to lack of unity, many efforts, well directed though they have been, have necessarily involved the waste of more or less money, time

and energy. The question very naturally arises as to whether the measure advocated by the Pomological Society of Southern California might not tend to complicate the situation still further by the addition of the Army as a fourth agency? The American Forestry Association the Pennsylvania Forestry Association, and the National Board of Trade, in meetings held during the past few weeks, have adopted resolutions favoring the unification of the several governmental agencies for the investigation, survey and administration of public forests, prefacing the proposition by the statement that such a change would be in the interest of public economy and lead to a more efficient and satisfactory service. The National Irrigation Congress, at its meeting in Cheyenne last September, declared in favor of the creation of a Bureau of Public Forests in the Department of the Interior, a proposition which has since been endorsed in the resolutions adopted at the annual meeting of the Colorado State Board of Horticulture.

It is unnecessary at this time to discuss the wisdom and propriety of utilizing the Army in even a temporary plan for forest management. There may have been a time when such a course might well have been adopted as a measure of temporary expediency, but if so it would seem that such a time has passed. At present there are pending in Congress two bills for the increase of the regular military establishment. This certainly indicates that the entire army is occupied in the discharge of its proper functions and that it now has no men to spare for forest patrol purposes. Not only is the Army not available for service in any scheme of forest administration and management, but it is doubtful if the War Department desires to have its present duties and cares increased.

Certainly it cannot be said that "an efficient forest patrol" consisting of "disciplined men of good physical capacity" cannot be organized apart from the Army as readily as within its ranks.

On the contrary, there is every reason to believe that an organization created for the single purpose will, under all conditions, prove the most satisfactory. If, at any time, a part of the military force becomes available for service in aiding to patrol the forest reservations during the season when there is imminent danger from fire, there is no reason to doubt that such service would prove to be a valuable supplement to that of a regularly constituted corps of foresters. Army officers who take intelligent interest in matters pertaining to forest preservation have made the appropriate suggestion that such service might well be substituted for, or made part of, the summer practice marches. At the present time, however, the further agitation of any specific proposition for the utilization of military forces in this capacity, coupled, as it would be, by a further division of authority, would seem to be unwise. This is true not only for the reasons already given, but also because such a course leads to a common misconception as to the professional questions involved. For this reason efforts must be made to promote a wider understanding of the fact that forest administration, in its strict sense, and forest management, are each quite as necessary as forest protection. With such an understanding established, the creation of a proper organization for the control, management and care of the forest reservation system could not be long delayed.

In this connection it is well to call attention to the admirable suggestion of Hon. Abbot Kinney, Chairman of the Yosemite Park Commission, that students of forestry be recognized as the most desirable candidates for employment as forest rangers and that they be given preference as such. This plan is certainly to be commended. Its adoption would result in the elimination of partisan politics from a matter where its intrusion is a manifest incongruity, and would have a generally elevating and beneficial effect on the forest service by the addition of discipline and physical ability. At the start the forest student

who seeks employment as a ranger would prove to be much more efficient than the average political appointee not only on account of his superior intelligence but also because he would possess a certain degree of professional enthusiasm, or pride of service, and an ambition for advancement. With such incentives he would become distinguished for his aptitude, efficiency, and fidelity to duty much more than the man who accepts such employment only because of the wages offered. Mr. Kinney's suggestion is timely and it is to be hoped that it may become the subject of favorable consideration and action.

THE PROTECTION OF IRRIGATION WORKS.

In the matter of natural fertility, the soil of the arid and semi-arid regions of the Western States has few superiors. Though the relative amount of organic matter is small, the elements of mineral fertility are abundant. This is due to the very fact of aridity. In the humid regions, where there is greater precipitation, the soils have been leached of their soluble salts by the washings and percolations of ages of rainfall, and now lack fertility because of the loss of these elements which have been swept to the sea. Added to a soil of the highest fertility, the arid regions possess a climate that is distinguished for its constant sunshine. With a rich soil and constant sunshine but one other condition is requisite for the attainment of the greatest possible returns for all agricultural and horticultural operations, and this is moisture. With this condition supplied, farming in the rainless regions presents one of the most inviting and promising fields for industry. That its possibilities have as yet been only touched is hinted at in the following paragraph from the *Denver Field and Farm*, whose editor, a long resident of the West, is the author of the well-known book, "Irrigation Farming":

If all the land under canal in Colorado were utilized, our State could support a population

ten times as great as now. The ditches already built cover four times the area on which crops are being cultivated and matured by the aid of the natural flow of the streams alone. The best that can be done with the three-fourths now left uncultivated is to water it once during the flood season, so increasing the pasturage or possibly raising one crop of alfalfa instead of the three or four crops which could be produced with an ample water supply. Many of the ditches already built have to remain idle and empty during more than half of the irrigation season, and the value of the greater part of the land under them is but little more than it would bring for pasturage alone. The period of greatest need in irrigation extends from the middle of June to the middle of July, while the demand during the last half of July is often as great as during the first half of June. There is no profit in planting crops which cannot be matured; hence the limit of the area which can be cultivated by the natural flow alone is not fixed by the flood discharge of May and June, but by the short supply of July.

Briefly stated, the future of irrigation development will largely depend upon the storage of flood waters that are now permitted to flow unused to the sea. How this end is to be achieved is a problem on the solution of which many minds are at work. That it will be solved, no one acquainted with the activity and ambition of the Western people doubts for a moment. That various measures will be adopted is probable. One of these is certain to be the rehabilitation, preservation and extension of forest protective areas. Even if the construction of a storage reservoir system would answer for all the purposes of water conservation (which it could not), the maintenance of protective forests would yet be an imperative necessity for the adequate protection and the most economical operation of irrigation works. The rapid confluence of storm waters is not the only evil that follows forest destruction in a mountainous region. Falling water washes loose particles of soil and gravel and small fragments of rock. The carrying power of flowing water increases as the sixth power of its velocity.* A torrent which has its source in the timber-stripped area of a steep mountain side often attains, after heavy rains, a power that not only moves sand

and gravel and small fragments, but transports boulders and other rock masses. These are deposited as the force of the current is checked, perhaps choking the bed of a stream and causing by its overflow the ruin of the lower lands on either side. As the slope of the receiving stream decreases the coarse gravel and fragments are deposited. The sand and silt are still carried in suspension, to settle finally on the bottom of some irrigation canal, so limiting its capacity by making it shallower, or to be deposited on the bed of a reservoir, the available storage capacity of which is thus decreased.

The cleaning of the sandy sediment from the bottom of canals is reckoned upon annually as an expensive but necessary item in the operation of many irrigation systems. In eastern Colorado the engineers on the Amity Canal reported that in one instance a small reservoir of two or three acres in extent was filled with a deposit of thirty feet of silt and sand in the single season of 1895. The construction of scouring sluices in canal systems and settling basins in connection with reservoirs may seem to reduce these difficulties to a minimum. Such expedients, however, are wasteful of either water or money, and results obtained are not always satisfactory. Even under the best conditions there will always be more or less erosion and movement of soil and detritus by flood waters; and a considerable deposit of the finer particles in the slower currents and still waters of irrigation works must always be taken into account. How to reduce these evils to the minimum is a question of the very greatest importance to the irrigator. Here then is one of the great offices of the protective mountain forests. To break the force of rapidly descending waters and hold a part of them in check to feed the springs and brooks after the season of flood is gone is indeed a useful function; but one scarcely less useful is that of binding of soil on slopes and, to a great extent, depriving the flood of its harmful power.

On page 42 THE FORESTER presents a

*LeConte's Geology, page 18.

view of a mountain-side irrigation canal in Larimer County, Colorado, showing how its former forest protection has been killed by fire. It is scarcely to be expected that, by natural means, a new growth will rapidly replace the protective forest thus destroyed.* In such a case there is a possibility that it may at times be necessary to remove gravel and other coarse materials from the bed of the canal as well as the usual deposit of fine sediment.

Storage reservoirs may supplement protective forests, but they cannot be substituted for them. Since no agency can take the place of forest preservation, this subject is one of deepest concern to intelligent irrigators. They realize that with the destruction of protective forests, great material loss must fall upon them.

In order that all conditions may be made the most favorable, that the maintenance and operation of irrigation works may be made successful with the least expenditure of labor and money, the forests must be restored and properly cared for. This must be done sooner or later, and the sooner it is done the less it will cost.

In a communication to the St. Paul *Pioneer Press* Mr. Otis Staples, a veteran lumberman calls attention to the enormous extravagance involved in the annual cutting down of young Spruces and Firs for use as "Christmas trees." The young growths used for this purpose for one Christmas in Minnesota would, according to his figures, if left standing, produce 37,500,000 feet of lumber in twenty-five years. It is to be inferred that Mr. Staples bases his figures upon the assumption that each of the small trees thus destroyed would, if left standing, grow to full maturity. Such an assumption would seem to be scarcely warranted by facts, for the mature forest, in the point of numbers, is but a fraction of its earlier composition, the surviving

trees having crowded out their weaker neighbors. It is well, however, to call attention to the abuses of which the Christmas-tree cutters are guilty. Their methods are generally indiscriminate and, in effect, are destructive. A young forest is benefited by judicious thinning, but the prevailing practice of these tree cutters is not based upon any thought of benefit except that of personal gain to the offender. This practice of making a clean cut of all young forest growth for this purpose, particularly near the larger cities in a mountain region, is a most reprehensible one, and should be made subject to regulation by law.

The "Report on Floods of the Mississippi River," by the Senate Committee on Commerce, which details the results of the investigations made pursuant to a resolution of the Senate, has been printed. Under the head of "Destruction of Forests" the report says:

Nothing in the evidence or other data obtained by your committee discloses the fact that the destruction of timber at or near the headwaters of these river systems tends to cause or promote the floods referred to. It was shown that where timber is cut down for purposes other than cultivation the underbrush remains and grows more luxuriant than ever, and such underbrush serves to retard rather than hasten the movement of water on the slopes and hillsides; and where timber is cut down for purposes of clearing and cultivation the plowed area becomes an enlarged absorbent of surface moisture. It is a generally accepted opinion that the destruction of timber tends rather to diminish than to increase the rainfall.

A very important phase of the flood question is passed over with a very brief mention. That the effects of forest destruction would seem to warrant a more extended discussion in such a report there can be no question, for it has been proven over and over again that the removal of forests in mountain regions is always followed by disastrous results in seasons of great flood. Of the fires that burn through the cut-over lands and of the soil erosion which follows in the wake of the fire on the steeper slopes, and the consequent destruction of its

*See article on "New Growth on Burned Areas" by Prof. C. S. Crandall in *THE FORESTER*, Vol. V, No. 1 (January, 1899).

forest-producing capability, no account seems to have been taken. The fact that a heavy growth of underbrush cannot grow on a hillside which has been denuded of its surface soil does not seem to have been taken into consideration. In regard to the "generally accepted opinion that the destruction of timber tends rather to diminish than to increase rainfall," there is some question. There is another opinion, also more or less generally accepted, that forest destruction tends to promote violent forms of precipitation and leads to the alternation of excessively dry and wet periods, thus producing the greatest extremes of variation in the flow of water in streams. Although such an opinion is perhaps well grounded it would be of doubtful wisdom to base any particular line of public policy upon any such popular assumption, in the absence of scientific data.

The great question of the use and abuse of water resources is demanding more attention on the part of the people of the United States each year, and it would be well, in the earlier discussions

upon this topic, to omit all mere guesswork from calculations. Such a course would in the end prove to be the most economical and facilitate the earliest and most complete development of national resources.

That the progress of forestry is often seriously hindered by the personal aspirations of politicians goes without saying. In the Oregon legislature a bill was introduced creating the office of commissioner of forestry, game and fish, and before it had time to pass either house there were three avowed candidates for the position. The Wisconsin plan of creating an unsalaried commission would probably result in the appointment of more competent though less ambitious men. Judging by results attained in some other states it would be better to have no legislation enacted upon this subject at all than to have it end in the selection of an official whose interest in forestry and whose qualifications for the work in hand were secondary to his desire for preferment to a salaried position.

Recent Publications.

The Physical Geography of Worcester Massachusetts, published by the Worcester Natural History Society, is an admirable little descriptive pamphlet which serves as a model for works of the kind. The author, is Mr. H. Perry.

Biennial Report of the State Forest, Game and Fish Commissioner of the State of Colorado. This report covers the years 1897 and 1898. Three pages are devoted to Forestry, and the remaining sixty-three pages to game and fish. The fact that Forestry makes no greater showing is not due to the preference of Commissioner Swan for the other interests, but to an uncomfortable condition of the Colorado law. The law so stands that there would seem to be a conflict of authority between Commissioner Swan and the State Land Board, which has rendered his power inoperative by going to both the "care of all woodlands and forests." Commissioner Swan urges legislation which shall elude this difficulty. It is to be hoped that his suggestions will be carried out. We should then have a report as interesting and pertinent throughout as Commissioner Swan has made this one concerning

game and fish, in which matters he has had a free hand.

Forestry in Minnesota, prepared by Prof. Samuel B. Green, and published by The Minnesota Forestry Association. This little volume is welcome. It is hard to see how a better elementary hand-book adapted both for general educational purposes and special local requirements could well be put together. The first 127 pages deal with "Elementary Forestry," and serve as a good introduction to the study in general. The second part deals with the trees of Minnesota in their relation to forests and planting. That Professor Green's book is necessarily local in certain of its aspects, is part of its very purpose. What is most needed is a number of such local forest manuals. It is by the aid of such writings as this that forestry will become widely applied on the part of individuals, and hence widely appreciated and encouraged by the country at large. Copies of this work will be sent to non-residents of Minnesota by the secretary of the Minnesota Forestry Association, Geo. W. Strand, Taylor's Falls, Minn., upon receipt of fifteen cents.

The Second Report of the American Park and Outdoor Association. This is an account of the meeting of the Association at Minneapolis, Minn., June 22, 23 and 24, 1898. "To promote the conservation of natural scenery, the acquirement and improvement of land for public parks and reservations, and the advancement of all outdoor art having to do with the designing and fitting of public grounds for public and private use," are the purposes for which it exists. A number of interesting papers deal with various aspects of the work, which has already been so successful.

The president of the Association is Mr. Charles M. Loring, of Minneapolis; the secretary is Mr. Warren H. Manning, whose address is 1146 Tremont Building, Boston, Mass.

The Wyoming State University has issued an instructive bulletin on the subject of "Cultivated Shade and Forest Trees of Wyoming," by Prof. B. C. Buffum.

It is estimated, the bulletin recites, that approximately one-sixth of the area of the State, or about ten million acres of land within its borders, is covered with timber. All of this is in the mountain regions. The bulletin gives in detail the results of experiments at the various stations in Wyoming in raising forest and shade trees. A summary of these results shows that the best trees for wind breaks, shelter belts and street planting in Wyoming are the Cottonwoods and Willows. The most rapid Cottonwood is the smooth-bark, or Rydburgh's. The next in value are the Broad Leaf, Black or Narrow Leaf Cottonwood and the Balm of Gilead. In the order of their hardness the following trees have been tried at the State experiment stations: Cottonwood, Willow, Silver Spruce, Douglas Spruce, Hardy Apples, Silver Maple, Cedar, White Ash, Locust, Elm, Mountain Ash, Black Walnut and Catalpa.

In a recent contribution to the *Atlantic Monthly*, President Charles W. Elliott, of Harvard University, who is noted as an observing traveler, says:

Any one who has traveled through the comparatively treeless countries around the Mediterranean, such as Spain, Sicily, Greece, Northern Africa and large portions of Italy, must fervently pray that our own country may be preserved from so dismal a fate. It is not the loss of the forests only that is to be dreaded, but the loss of agricultural regions now fertile and populous, which may be desolated by the floods that rush down from bare hills and mountains, bringing with them vast quantities of sand and gravel to be spread over the lowlands. Traveling a few years ago through Tunisia, I came suddenly upon a fine Roman bridge of stone over a wide, bare, dry river bed. It stood some 30 feet above the bed of the river, and had once served the needs of a

prosperous population. Marveling at the height of the bridge above the ground, I asked the French station master if the river ever rose to the arches which carried the roadway of the bridge. His answer testified to the flooding capacity of the river and the strength of the bridge. He said, "I have been here four years, and three times I have seen the river running over the parapets of that bridge." That country was once one of the richest granaries of the Roman Empire. It now yields a scanty support for a sparse and semi-barbarous population. The whole region round about is treeless. The care of the National forests is a provision for future generations, for the permanence over vast areas of our country of the great industries of agriculture and mining upon which the prosperity of the country ultimately depends. A good forest administration would soon support itself; but it should be organized in the interests of the whole country, no matter what it cost.

FOREST TREE SEEDS AND SEEDLINGS

For over forty years we have collected seeds and grown seedlings for forestry purposes—our trade extending all over the world, and including many large contracts with different governments and individuals.

Full catalogue and information on forestry subjects furnished upon application.

THOMAS MEEHAN & SONS,

Nurserymen, Tree Seedsmen and
Landscape Engineers,

140 Acres in Nurseries.

GERMANTOWN, PHILADELPHIA.

Premo Cameras

PREMO PRODUCE

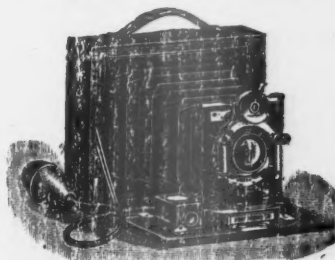
PERFECT PICTURES.

Have achieved an enviable reputation
the world over.

20 DIFFERENT STYLES AND SIZES.

\$5.00 to \$50.00.

Premo Catalogue Free on Request.



ROCHESTER OPTICAL CO.,

ROCHESTER, N. Y

HITCHINGS & CO.,

Established 1844.

Horticultural Architects and Builders, and Largest Manufacturers of Greenhouse Heating and Ventilating Apparatus.



The highest awards received at the World's Fair for Horticultural Architecture, Greenhouse Construction and Heating Apparatus, Conservatories, Greenhouses, Palm Houses, etc., erected complete, with our patent iron frame construction. Send four cents postage for illustrated catalogue.

233 MERCER ST., NEW YORK.

J. M. THORBURN & CO.,
NEW YORK.

Established
1802.

HEADQUARTERS FOR . . .

Tree and Shrub Seeds

AND FOR

Natural and Cultivated Grasses,
BOTH FOREIGN AND DOMESTIC.

GRASS SEED MIXTURES FOR LAWNS AND GOLF LINKS, AND FORMULÆ
FOR PERMANENT PASTURES AND MEADOWS PRESCRIBED TO SUIT
EVERY DIFFERENT CONDITION OF SOIL AND CLIMATE.

CATALOGUES MAILED FREE ON APPLICATION.

CORRESPONDENCE INVITED.

Our patrons will kindly note that we have removed from our store in John Street,
which we had occupied for the past 65 years, and are now established in our new
and more commodious building at . . .

36 Cortlandt Street, New York

Waukegan Nurseries

EVERGREEN and FOREST TREES in large quantities for forest planting. Contracts taken
for planting fifty acres or more.

Wholesale and Retail Dealers in General Nursery Stock.

R. Douglas Sons,

Waukegan, Ill.

The object of this Association is to promote :

1. A more rational and conservative treatment of the forest resources of this continent.
2. The advancement of educational, legislative and other measures tending to promote this object.
3. The diffusion of knowledge regarding the conservation, management and renewal of forests, the methods of reforestation of waste lands, the proper utilization of forest products, the planting of trees for ornament, and cognate subjects of arboriculture.

Owners of timber and woodlands are particularly invited to join the Association, as well as
re all persons who are in sympathy with the ob jects herein set forth.

